

**CLAIM Amendments**

1. (original) A strain of the yeast *Saccharomyces cerevisiae* which can no longer grow on substrates with hexoses as the only carbon source, and whose ability of growing on a substrate with a hexose as the only carbon source is restored when a GLUT4 gene is expressed in this strain.

2. (previously presented) The strain of the yeast *Saccharomyces cerevisiae* of claim 1 as deposited at the Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH as DSM 14035, DSM 14036 or DSM 14037.

3. (currently amended) A method for generating a strain of the yeast *Saccharomyces cerevisiae* as claimed in claim 1, comprising the steps of:

- a) providing a strain of *Saccharomyces cerevisiae* yeast,
- b) eliminating the function of all hexose transporters of the strain of yeast from a) by mutating or deleting the relevant genomic sequences,
- c) subjecting the strain from step b) to further mutagenesis, and
- d) screening the mutated strains from step c) for the ability to grow on a substrate with a hexose as the only carbon source when a GLUT4 gene is expressed in the strain.

4. (previously presented) The strain of the yeast *Saccharomyces cerevisiae* as claimed in claim 1, which comprises a GLUT4 gene.

5. (previously presented) The strain of the yeast *Saccharomyces cerevisiae* as claimed in claim 4, wherein the GLUT4 gene is under the functional control of a promoter which can be expressed in yeast.

6. (previously presented) The strain of the yeast *Saccharomyces cerevisiae* as claimed in claim 4, wherein the Glut4 gene is a human Glut4 gene, a mouse Glut4 gene, or a rat Glut4 gene.

7. (previously presented) The strain of the yeast *Saccharomyces cerevisiae* as claimed in claim 4 as deposited at the Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH as DSM 14038, DSM 14039 or DSM 14040.

8. (previously presented) A method for generating a strain of the yeast *Saccharomyces cerevisiae* as claimed in claim 4, comprising the steps of:

- a) providing a strain of the yeast *Saccharomyces cerevisiae* which can no longer grow on substrates with hexoses as the only carbon source, and whose ability of growing on a substrate with a hexose as the only carbon source is restored when a GLUT4 gene is expressed in the strain;
- b) transforming the yeast of step a) with a plasmid comprising a GLUT4 gene which is under the functional control of a promoter which can be expressed in yeast;
- c) plating the strain of step b) onto a medium comprising glucose as the only carbon source; and
- d) isolating the strain that has been plated in accordance with c) and which grows on this medium.

9. (previously presented) The method of claim 8, wherein the GLUT4 gene used in transforming step b) is a human GLUT4 gene, a mouse GLUT4 gene, or a rat GLUT4 gene.

10. (previously presented) The method of claim 8, wherein a vector with a polynucleotide sequence as shown in SEQ ID No. 9 or 10 is used in transforming step b).

11. (withdrawn) A method for identifying a compound which increases or reduces the amount of a hexose transported by means of a Glut4 protein, comprising the steps of:

- a) providing the strain of claim 4;
- b) determining the amount of a hexose taken up by the strain of step a);
- c) providing a compound;
- d) contacting the strain of step a) with the compound;
- e) determining the amount of hexose taken up by the yeast strain after contacting the compound; and
- f) identifying a compound as increasing or reducing the amount of hexose transported by means of a Glut4 protein by comparing the amount of hexose taken up by the strain before and after contacting in accordance with d), which is determined in accordance with b) and e).

12. (withdrawn) A pharmaceutical comprising a compound which has been identified and, if appropriate, further developed by a method as claimed in claim 11, and adjuvants for formulating the pharmaceutical for the treatment of diabetes or adiposity.

13. (withdrawn) A method for treating diabetes or adiposity in a subject comprising administering to the subject an effective amount of a compound which has been identified and, if appropriate, further developed by a method as claimed in claim 11, for the preparation of a pharmaceutical for the treatment of diabetes or adiposity.

14. (withdrawn) A method for identifying a compound which increases or reduces the amount of a hexose transported by means of a Glut1 protein, comprising the steps of:

- a) providing a strain of the yeast *Saccharomyces cerevisiae* which can no longer grow on substrates with hexoses as the only carbon source and whose ability of growing on a substrate with a hexose as the only carbon source is restored when it expresses a Glut1 gene, this strain comprising a GLUT-1 gene under the functional control of a promoter which can be expressed in yeast;
- b) determining the amount of a hexose which is taken up by this strain provided in accordance with a);

- c) providing a compound;
- d) contacting the strain of the yeast provided in accordance with a) with the compound provided in accordance with c);
- e) determining the amount of hexose taken up by the yeast strain after contacting in accordance with d); and
- f) identifying a compound as increasing or reducing the amount of a hexose transported by means of a Glut1 protein by comparing the amount of the hexose taken up by the strain before and after contacting in accordance with d), which is determined in accordance with b) and e).

15. (withdrawn) The method as claimed in claim 14, wherein the strain of step a) has a Strain number of DSM 14026, DSM 14027 or DSM14033 [is provided].

16. (withdrawn) A pharmaceutical comprising a compound which has been identified and, if appropriate, further developed by the method as claimed in claim 14, and adjuvants for formulating the pharmaceutical for the treatment of diabetes or adiposity.

17. (withdrawn) A method for treating diabetes or adiposity in a subject, comprising administering to the subject an effective amount of the compound which has been identified and, if appropriate, further developed by the method as claimed in claim 14 for the preparation of a pharmaceutical for the treatment of diabetes or adiposity.

18. (original) A strain of the yeast *Saccharomyces cerevisiae* as deposited at the Deutsche Sammlung von Mikroorganismen and Zellkulturen GmbH under the Accession Number DSM 14026 or DSM 14027.

19. (withdrawn) A method for generating a strain of *Saccharomyces cerevisiae* as claimed in claim 18, comprising the steps of:

a) providing a strain of *Saccharomyces cerevisiae* yeast which can no longer grow on substrates with hexoses as the only carbon source, and whose ability of growing on a substrate with a hexose as the only carbon source is restored when a GLUT4 gene is expressed in this strain;

b) transforming the strain of a) with a plasmid comprising a polynucleotide sequence of SEQ ID No. 13 or 14;

c) plating the strain that has been transformed in accordance with b) onto a medium comprising glucose as the only carbon source; and

d) isolating a strain which has been plated in accordance with c) and which grows on this medium.

20. (withdrawn) An isolated nucleic acid molecule that encodes a GLUT1 protein having an amino acid sequence in which the valine at position 69 is substituted with methionine.

21. (withdrawn) The isolated nucleic acid molecule of claim 20, comprising the DNA sequence of SEQ ID NO:13.

22. (withdrawn) A Glut1 protein encoded by the isolated nucleic acid molecule of claim 21.

23. (withdrawn) An isolated nucleic acid molecule that encodes a GLUT1 protein having an amino acid sequence in which the valine at position 70 is substituted with methionine.

24. (withdrawn) The isolated nucleic acid molecule of claim 23, comprising the DNA sequence of SEQ ID NO:14.

25. (withdrawn) A Glut1 protein encoded by the isolated nucleic acid molecule of claim 24.

26. (new) A strain of the yeast *Saccharomyces cerevisiae* produced by the process of claim 3.

27. (new) The method of claim 3, wherein step c) comprises:

c<sub>1</sub>) transforming the strain from step b) with a vector comprising the GLUT1 gene under the functional control of a promoter which can be expressed in yeast,

c<sub>2</sub>) subjecting the transformed strain of step c<sub>1</sub>) to further mutagenesis,

c<sub>3</sub>) screening the transformed, mutated strain from step c<sub>2</sub>) for the ability grow on a substrate with a hexose as the only carbon source,

c<sub>4</sub>) isolating a transformed, mutated strain identified in step c<sub>3</sub>) as having the ability to grow on a substrate with a hexose as the only carbon source, and

c<sub>5</sub>) removing the vector comprising the GLUT1 gene from the isolated strain of step c<sub>4</sub>).

28. (new) A strain of the yeast *Saccharomyces cerevisiae* produced by the process of claim 27.